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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Toru Okabe

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EXAMINER

ZHU, WEIPING

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

06/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/517,036	Applicant(s) OKABE ET AL.	
	Examiner WEIPING ZHU	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 May 2009 and 27 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-11 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 26, 2009 has been entered.

Status of Claims

2. Claims 1, 8-11 and 16-20 are currently under examination wherein claims 1, 8 and 17 have been amended in applicant's amendment filed on April 27, 2009. Claims 2-4 and 6 have been cancelled in the same amendment.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "reaction agent" in line 3 of claim 16 lacks proper antecedent basis. Furthermore, even if the "reaction agent" is taken as the binder compound as defined in instant independent claim 1, the scope of the compound as defined in claim 1 by a Markush Group cannot be expanded by dependent instant claim 16.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 8-11 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Löffelholz et al. (US 6,136,062) in view of Takahar et al. (US 5,417,917) and further in view of Kamei et al. (US 6,015,527).

With respect to claims 1, 8, 9 and 11, Löffelholz et al. ('062) discloses a method for producing niobium and/or tantalum powders by reducing the metal compounds with an active metal (e.g. alkaline earth metals and/or rare earth metals) as a reducing agent (col. 1, lines 34-38). Löffelholz et al. ('062) further discloses that niobium oxide and tantalum oxide can be reduced (col. 1, lines 60-61); the preferred reducing metals are magnesium, calcium, lanthanum and cerium, magnesium is particularly preferred (col. 1, lines 62-65); the reducing temperature is between 750 and 850° C (col. 1, lines 49-59), which is within the claimed reducing temperature; the reduction product is separated from alkaline earth oxides and /or rare earth oxides formed in the reduction and from excess alkaline earth metal and/or rare earth metal by acid washing (col. 1, lines 42-47).

Löffelholz et al. ('062) does not disclose the claimed features in the mixing, molding and sintering steps.

Takahar et al. ('917) discloses a method for producing a metallic porous membrane comprising: mixing a powdery metal compound with a binder; molding the mixture to a desired shape; and sintering the compact to produce a sintered metal compound compact followed by a reducing step to reduce the compact to a metallic porous membrane by a reducing gas (col. 3, lines 46-68).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to mix a powdery metal compound with a binder; mold the mixture to a desired shape; sinter it to a sintered compact; and reduce the compact by a reducing agent in a gaseous form as disclosed by Takahar et al. ('917) in the process of Löffelholz et al. ('062) in order to improve the quality of the final product and be well feasible to the industrial practice as disclosed by Takahar et al. ('917) (col. 4, lines 1-7).

Löffelholz et al. ('062) in view of Takahar et al. ('917) does not teach the mixture comprises a compound as claimed.

Kamei et al. ('527) discloses a method for producing reduced iron comprising mixing a metal compound, a powdery solid reductant, some amounts of water and a binder comprising bentonite, lime, surface-active agent or the like and compacting the mixture in a sheet-like shape (col. 8, lines 29-34 and 62-65). The binders as disclosed by Kamei et al. ('527) (e.g. bentonite including sodium bentonite, sodium carbonate activated bentonite and potassium bentonite) read on the claimed at least one compound selected from the group consisting of oxides of Mg, Na, Ba and K; halides of Ca, Mg, Na, Ba, and K; and carbonates of Mg, Na, Ba and K.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to mix a metal compound, an amount of bentonite and a binder together for molding in the process of Löffelholz et al. ('062) in view of Takahar et al. ('917) in order to facilitate uniform and rapid mixing, and furthermore the formation of the compacts as disclosed by Kamei et al. ('527) (col. 8, lines 29-34 and 62-65).

Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) discloses reducing the sintered compact of desired form by a reducing agent in a gaseous form (i.e. the vapor of the active metal as claimed) as discussed above, which reads on the claimed reducing step of supplying a vaporized active metal to the metal compound compacts. Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) does not specify the manner of the arrangement of the metal compound compacts as claimed. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to arrange the compacts in the claimed manner in order to reduce the compacts of Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) by a vaporized active metal effectively and uniformly. The extent of the shape change of the compacts before and after the reducing step would be substantially identical to the claimed extent, because the processes of Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) and the instant application are substantially identical, and are performed upon substantially identical products. See MPEP 2112.01.

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With respect to the amended feature in claim 10, Takahar et al. ('917) discloses the mixture is molded to a shape of 70 mm in diameter and about 2 mm thick (col. 1, lines 48-50). The distance from an arbitrary location within the compact to the surface is 1 mm, which overlaps the claimed distance range of 2 to 5 mm.

With respect to claim 16, the compounds used by Kamei meet the presently claimed limitations.

With respect to claim 17, Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) does not specify the mixing ratio of the compound as claimed. However, it is well held that discovering an optimum value of a result-effective variable involves only routine skill in the art. In re Boesch, 617, F.2d 272, 205 USPQ 215 (CCPA 1980). In the instant case, mixing ratio of the compound is a result-effective variable, because it would directly affect the uniformity of the mixture as disclosed by Kamei et al. ('527) (col. 8, lines 29-34 and 62-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the mixing ratio of the compound of Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) for the desired uniformity of the mixture. See MPEP 2144.05 II.

With respect to claim 18, this claim is rejected for the same reason as instant claim 10 as discussed above. Furthermore, it is well settled that merely changing the size of an article is not a matter of invention. See MPEP 2144.04 IV.

With respect to claim 19, Takahar et al. ('917) discloses that the mixing ratio of metal compound in the metal compound compact is not less than 10% by weight (col. 3, lines 46-51), which is the same as the claimed range.

With respect to claim 20, Löffelholz et al. ('062) discloses that 480 g of Mg melt is mixed with 350 g of the metal compound to reduce the metal compound (Example 1, Table 1), which overlaps the claimed range.

Response to Arguments

5. The applicant's arguments filed on April 27, 2009 have been fully considered but they are not persuasive.

First, the applicant argues that Löffelholz et al. ('062), Takahar et al. ('917) and Kamei et al. ('527) do not disclose the claimed compound; the powdery solid reductants disclosed by Kamei et al. ('527) are entirely different from the compounds recited in the instant claim 1 and the compounds are added in addition to the binder as claimed. In response, see the discussion related to the claimed compounds as set forth in the rejection above.

Second, the applicant argues that Löffelholz et al. ('062) teaches removing magnesium oxide at the end of the first stage. Accordingly, since removal is desired, it would not have been obvious to add magnesium oxide in the first instance. In response, it is noted that removing the compound after the reducing step is also recited in instant claim 1, and therefore it is unclear how any disclosure of removing in the prior art differs from the claimed invention.

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Third, the applicant argues that unexpected effects of the compounds would not have been obvious. In response, it is noted that no such effects are recited in the instant claims. Furthermore, Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) meets all the claimed limitation as discussed above. The same effects of adding the compounds would be achieved in the process of Löffelholz et al. ('062) in view of Takahar et al. ('917) and further in view of Kamei et al. ('527) as in the instantly claimed process, because the prior art process appears to be substantially the same, and performed under substantially the same conditions as the claimed process.

Conclusion

6. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/
Primary Examiner
Art Unit 1793

WZ
6/15/2009